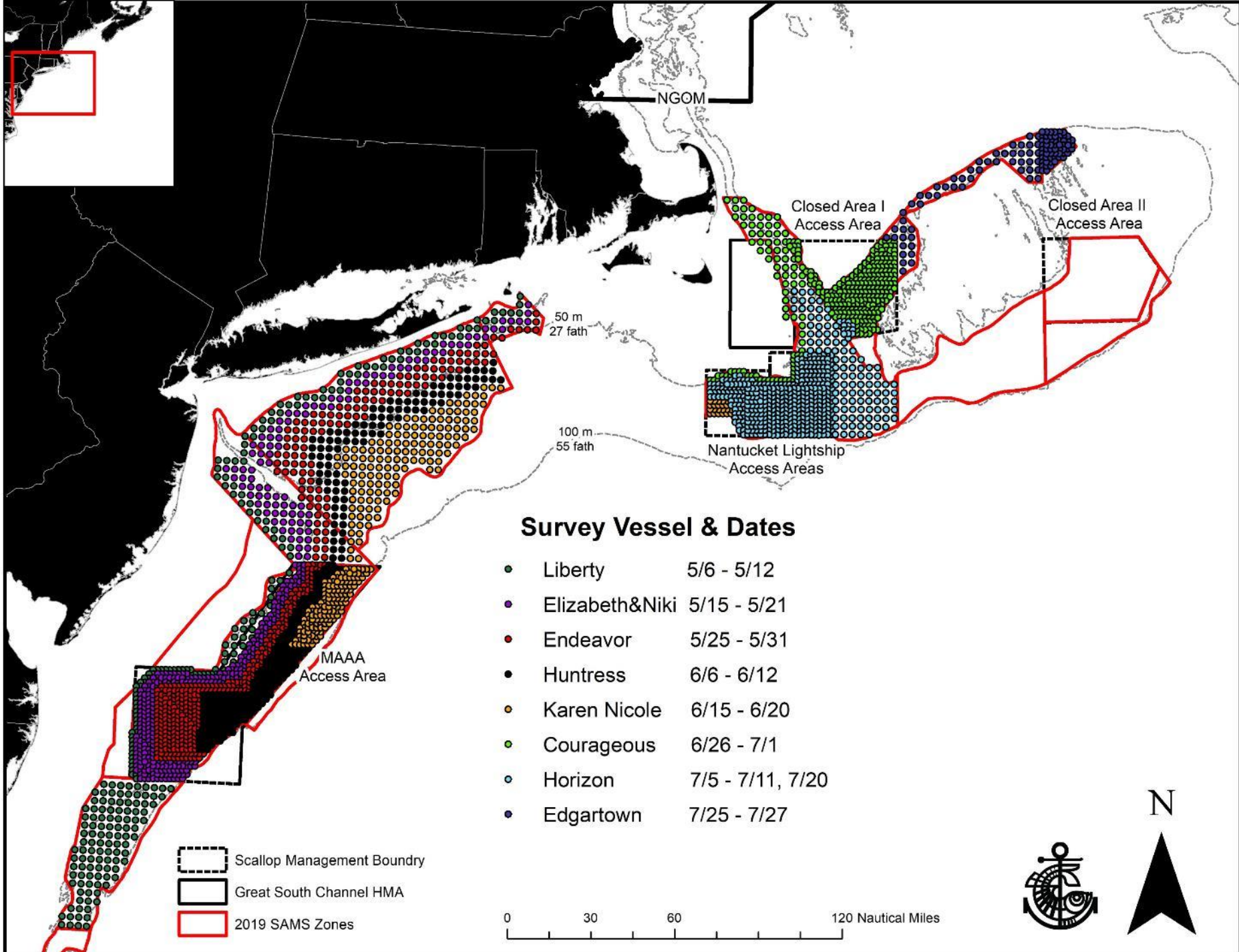


2019 SMAST Drop Camera Survey Results

Scallop PDT Meeting
August 27-28, 2019



Department of Fisheries Oceanography
School for Marine Science and Technology
University of Massachusetts Dartmouth



NGOM

Closed Area I
Access Area

Closed Area II
Access Area

50 m
27 fath




100 m
55 fath

Nantucket Lightship
Access Areas

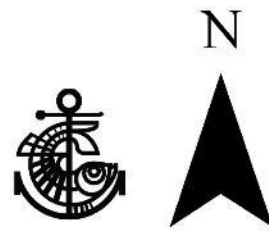
MAAA
Access Area

Survey Vessel & Dates

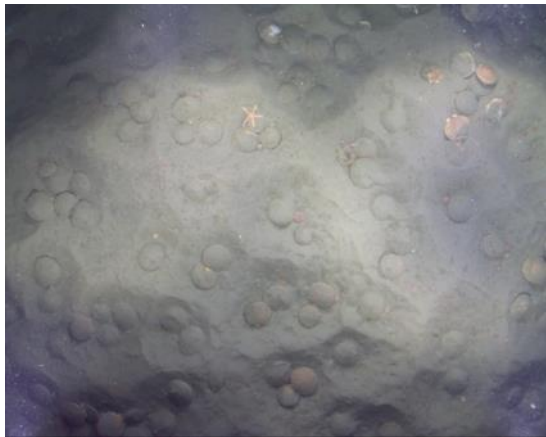
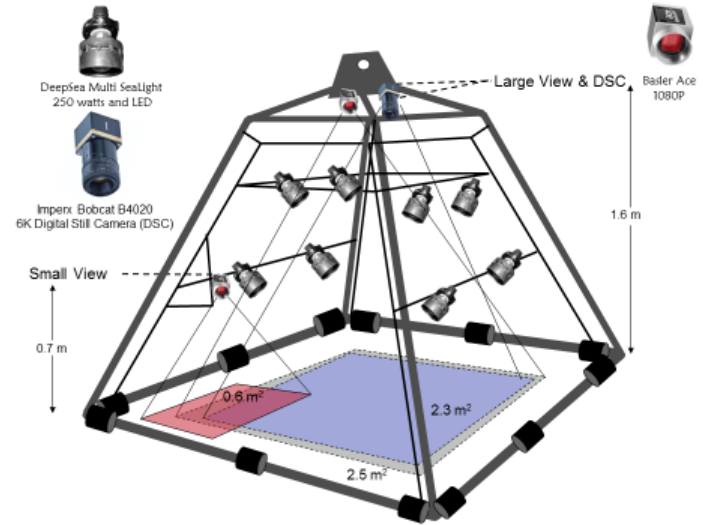
- Liberty 5/6 - 5/12
- Elizabeth&Niki 5/15 - 5/21
- Endeavor 5/25 - 5/31
- Huntress 6/6 - 6/12
- Karen Nicole 6/15 - 6/20
- Courageous 6/26 - 7/1
- Horizon 7/5 - 7/11, 7/20
- Edgartown 7/25 - 7/27

-  Scallop Management Boundry
-  Great South Channel HMA
-  2019 SAMS Zones

0 30 60 120 Nautical Miles



Drop Camera Pyramid – Imperx Digital Still



Large View (2.5 m²)

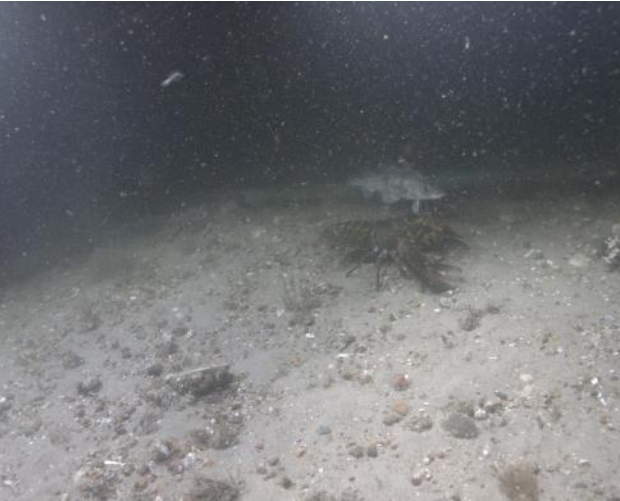
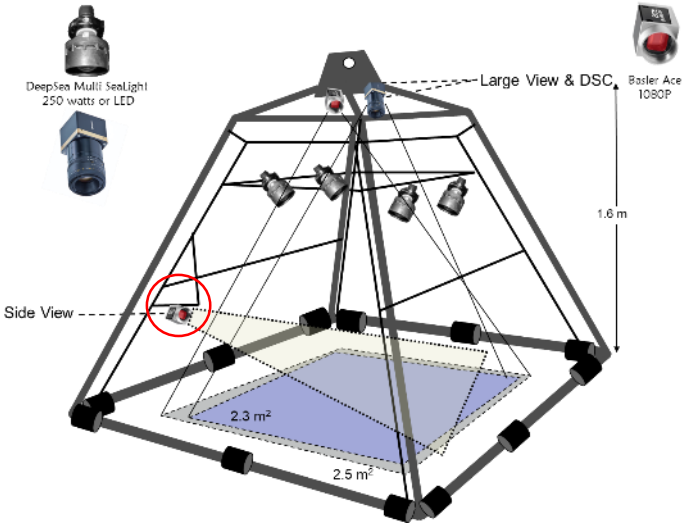
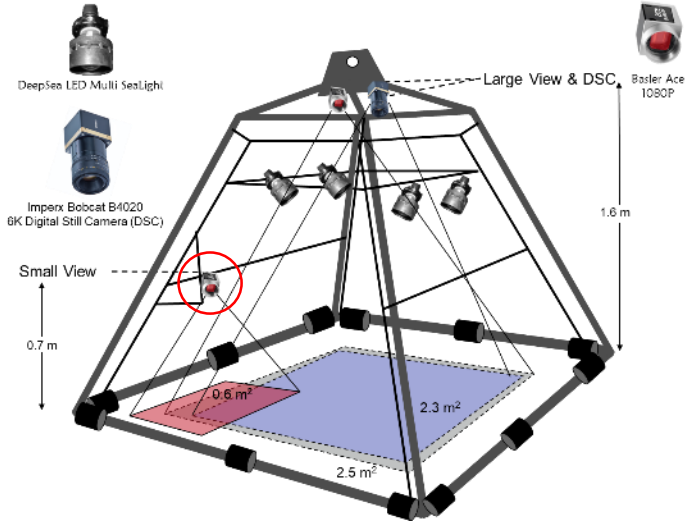


Small View (0.6 m²)



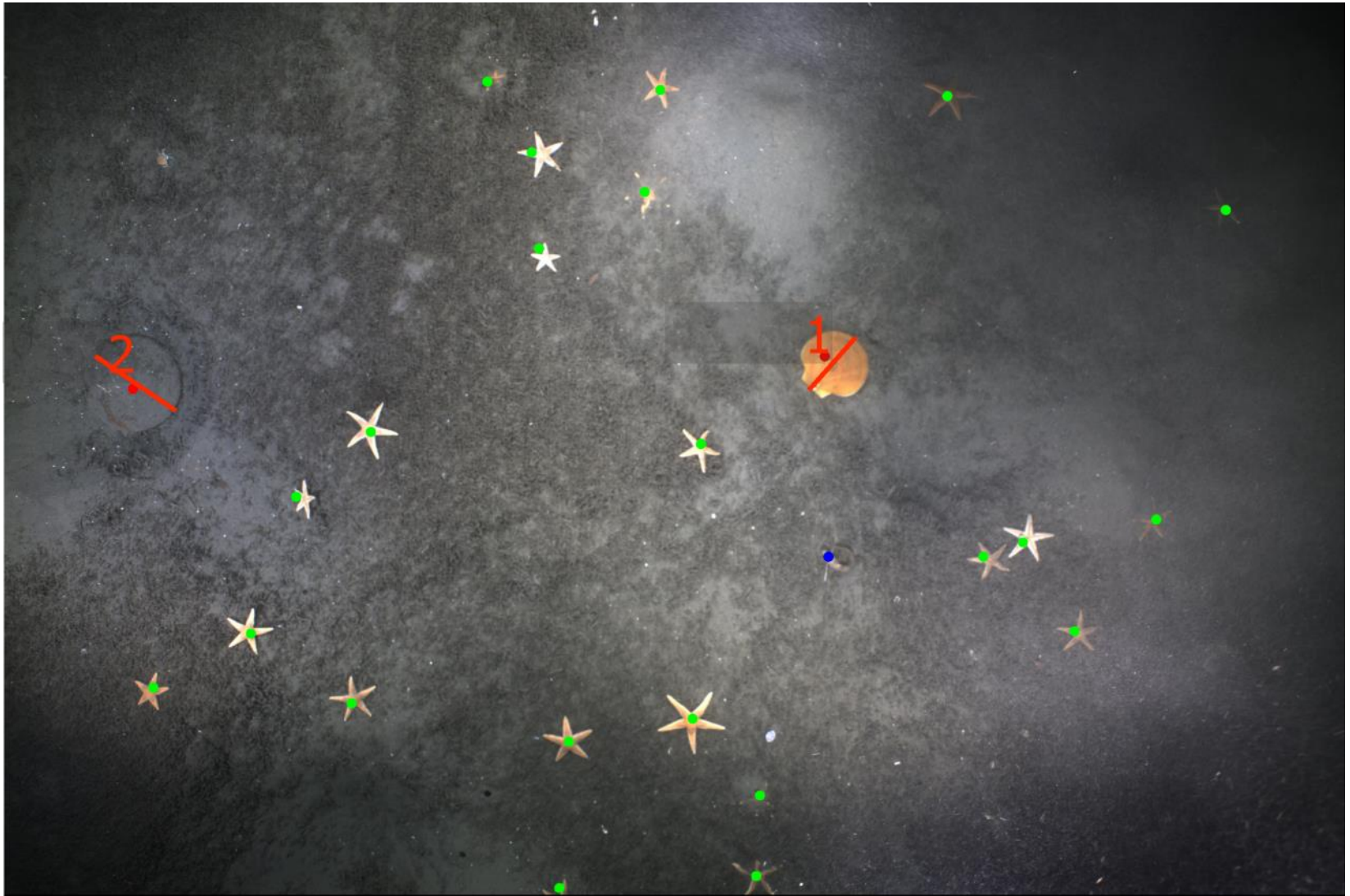
Digital Still Camera (2.3 m²)

Return of the Side Camera



Portion of NLS-West; All of northern flank

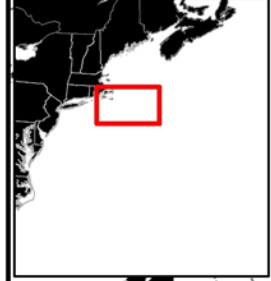
Image Processing






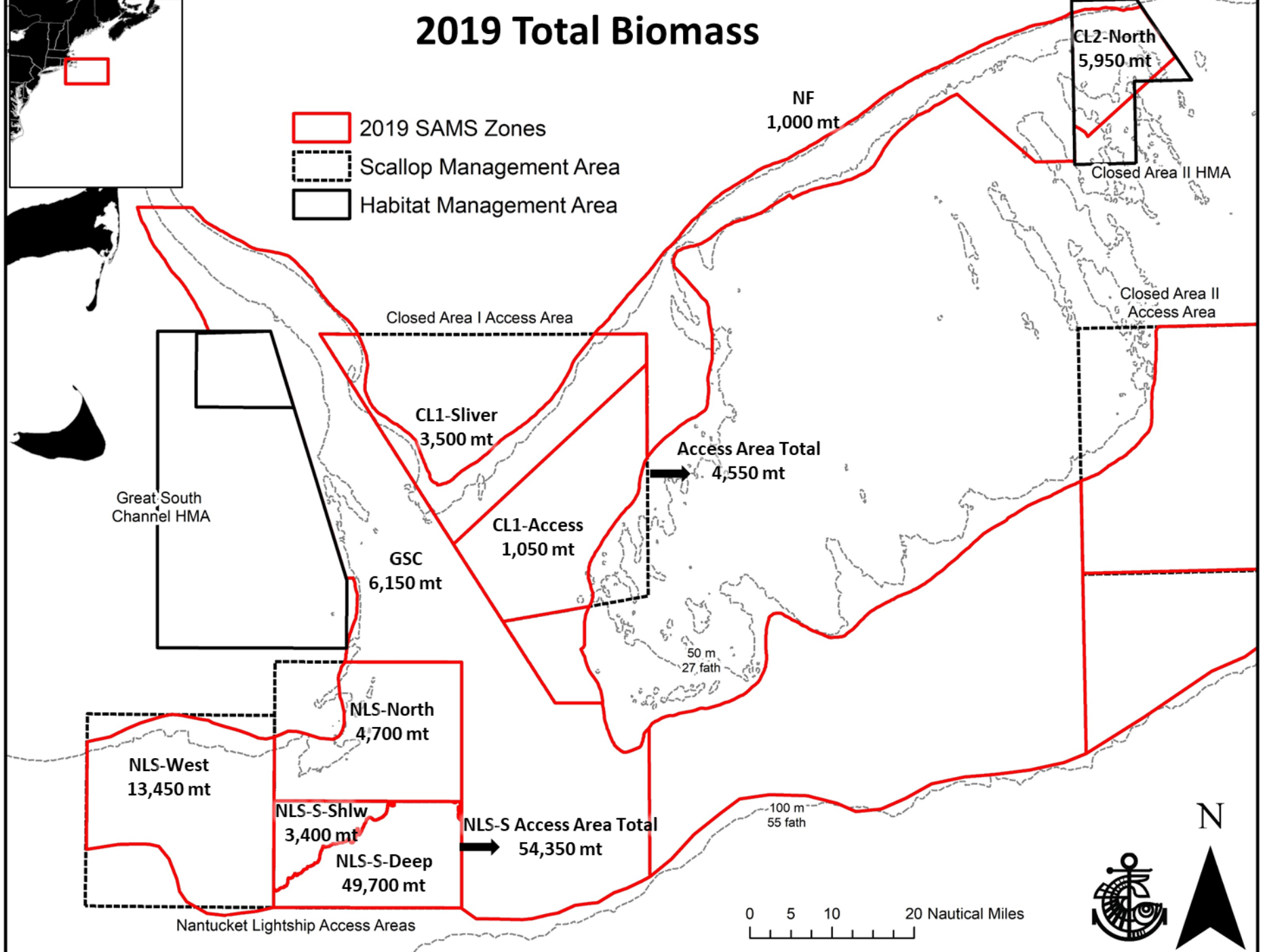
Every image annotated, looked at by three people
Video from large and side camera view used as an aid

Detailed methods: Bethoney and Stokesbury 2018, doi:10.3791/57493

2019 Total Biomass



-  2019 SAMS Zones
-  Scallop Management Area
-  Habitat Management Area



CL2-North
5,950 mt

NF
1,000 mt

Closed Area II HMA

Closed Area II
Access Area

Closed Area I Access Area

CL1-Sliver
3,500 mt

Access Area Total
4,550 mt

Great South
Channel HMA

CL1-Access
1,050 mt

GSC
6,150 mt

50 m
27 fath

NLS-North
4,700 mt

NLS-West
13,450 mt

NLS-S-Shlw
3,400 mt

NLS-S Access Area Total
54,350 mt

NLS-S-Deep
49,700 mt

100 m
55 fath

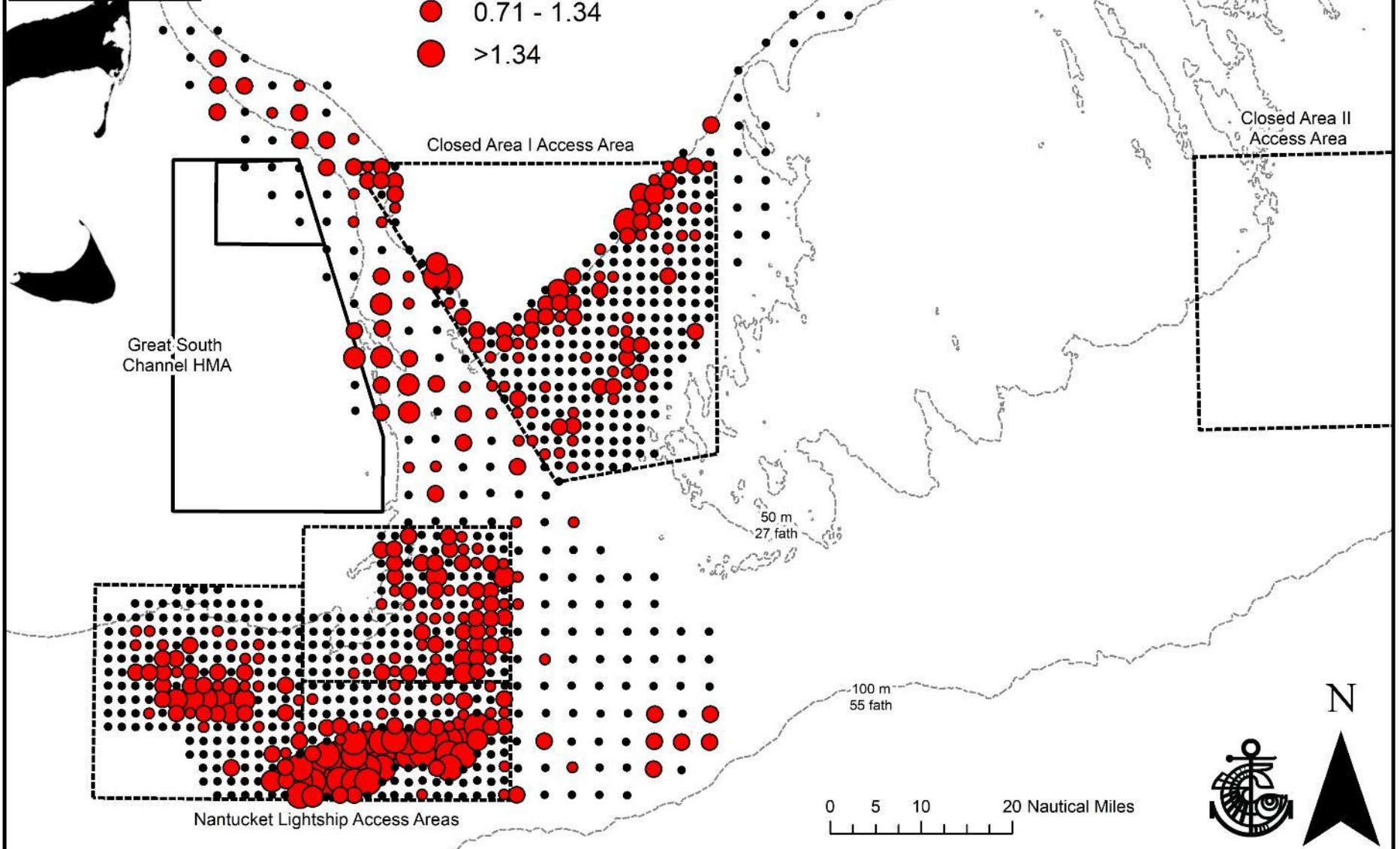
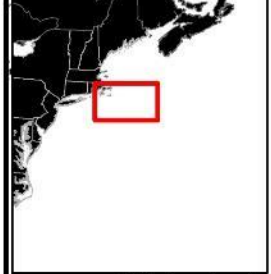
Nantucket Lightship Access Areas

0 5 10 20 Nautical Miles



Scallops per m²

- <0.09
- 0.09 - 0.17
- 0.18 - 0.70
- 0.71 - 1.34
- >1.34



Closed Area II HMA

Closed Area II Access Area

Closed Area I Access Area

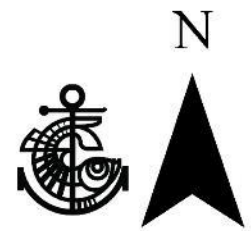
Great South Channel HMA

Nantucket Lightship Access Areas

50 m
27 fath

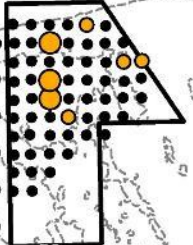
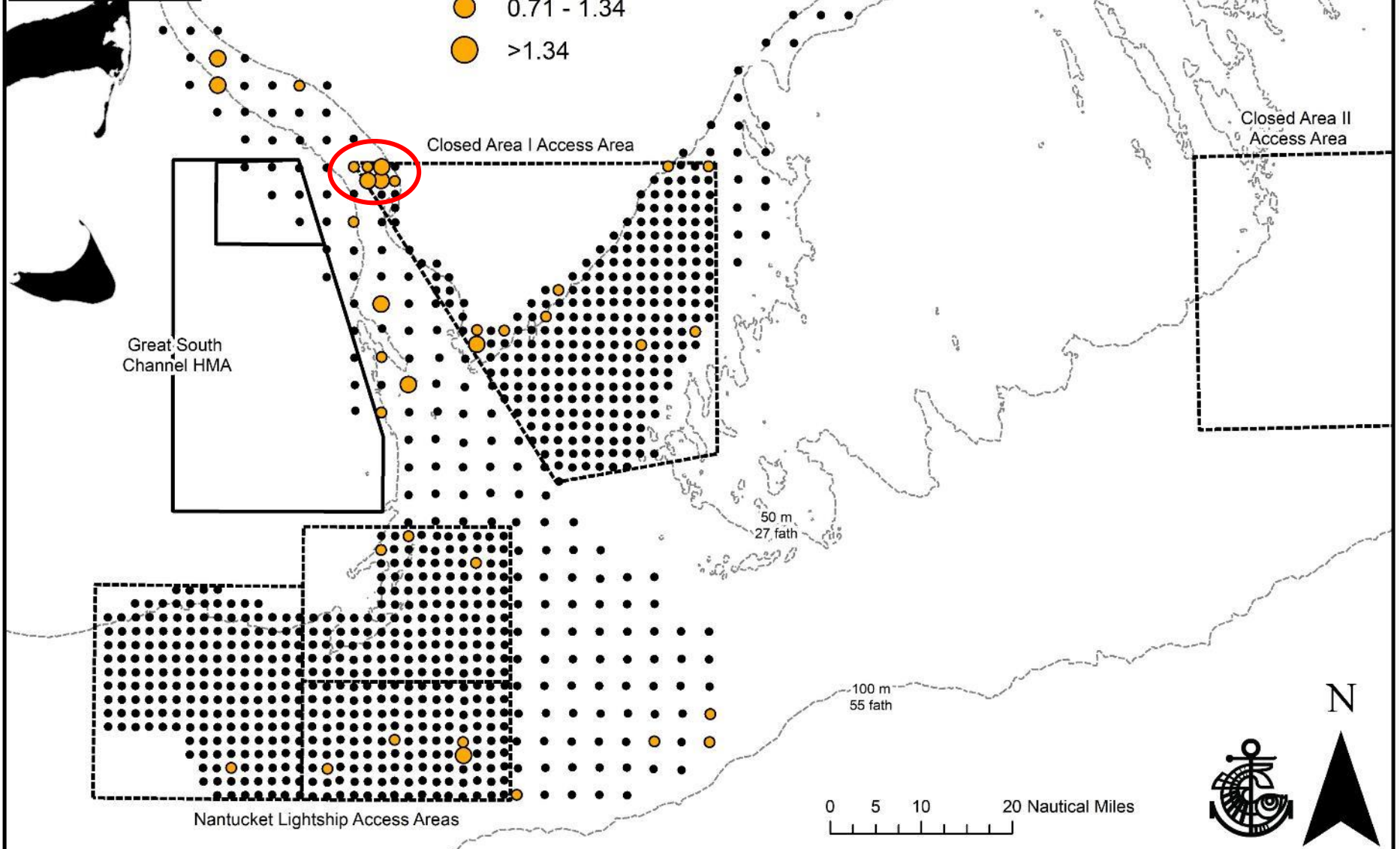
100 m
55 fath

0 5 10 20 Nautical Miles



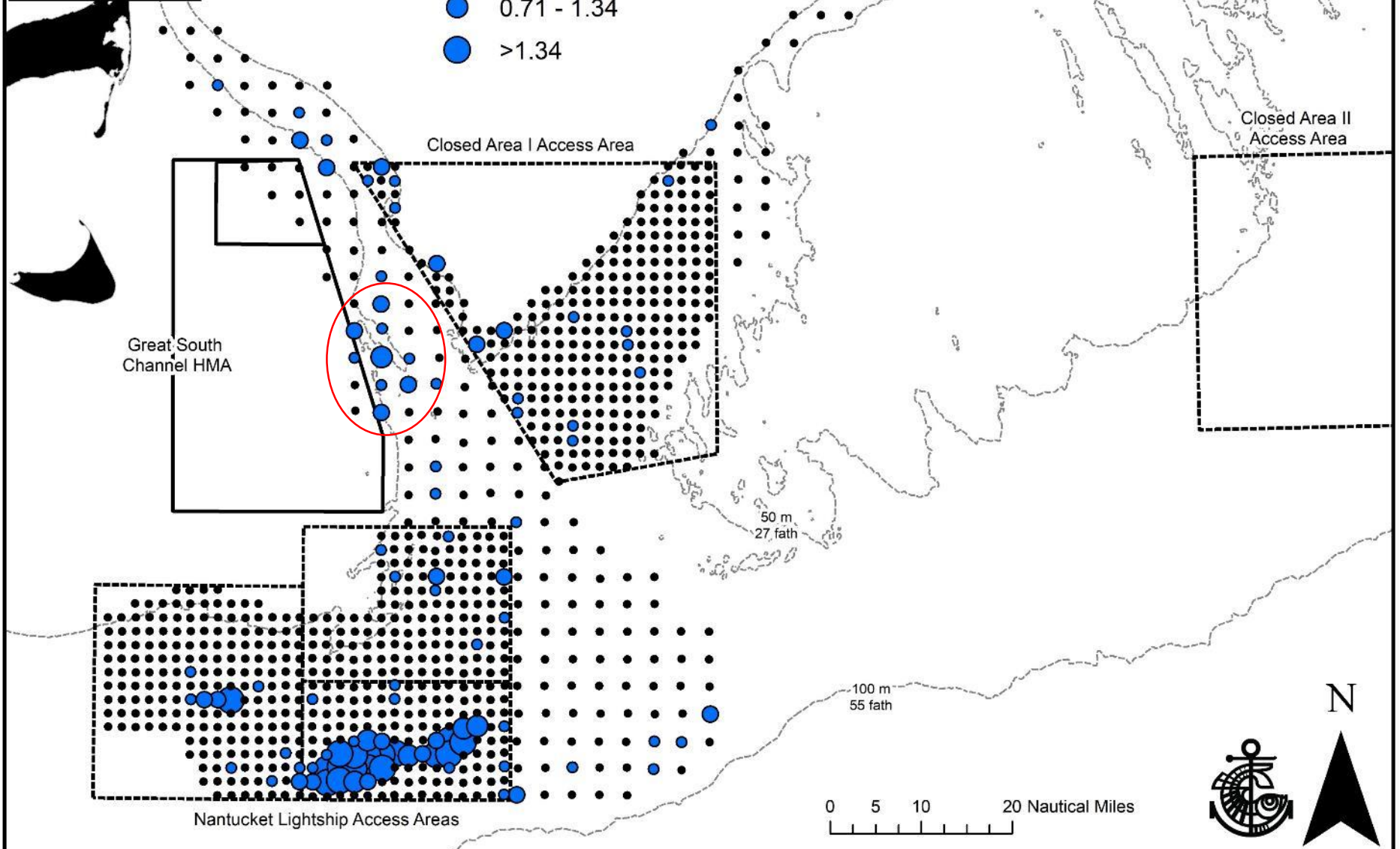
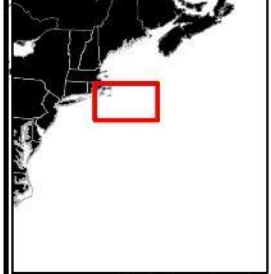
Pre-recruits (< 35 mm) per m²

- <0.09
- 0.09 - 0.17
- 0.18 - 0.70
- 0.71 - 1.34
- >1.34



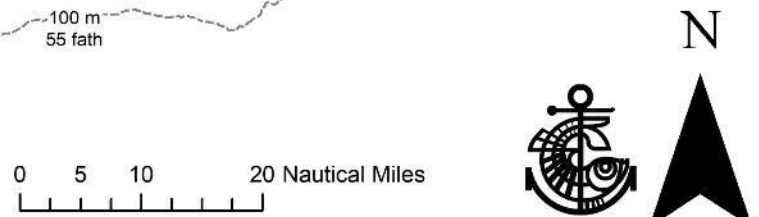
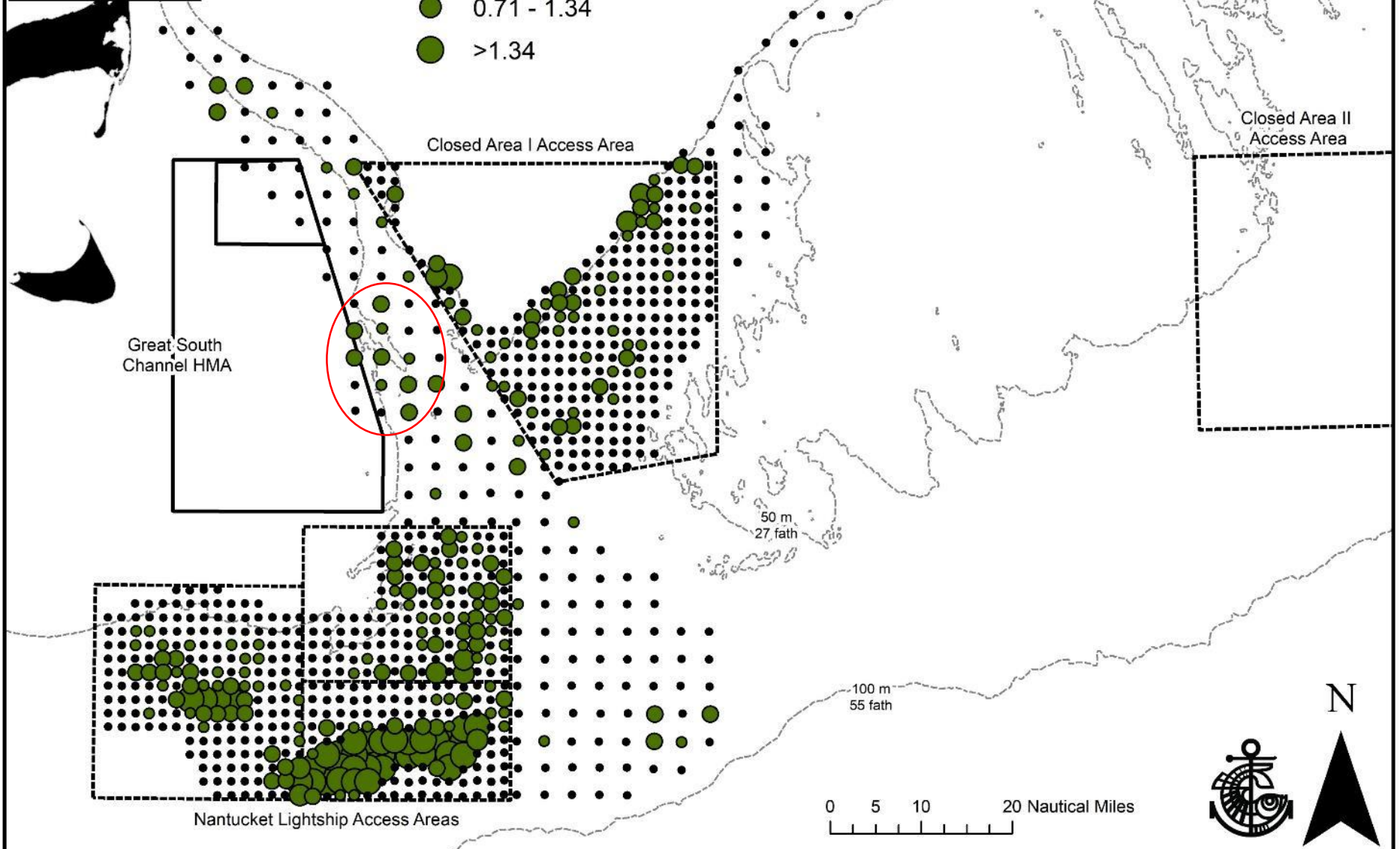
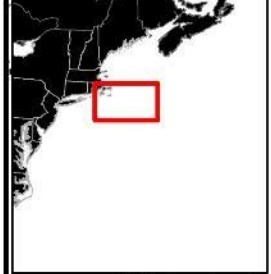
Recruits (35 - 75 mm) per m²

- <0.09
- 0.09 - 0.17
- 0.18 - 0.70
- 0.71 - 1.34
- >1.34



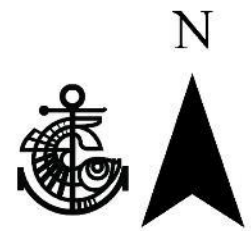
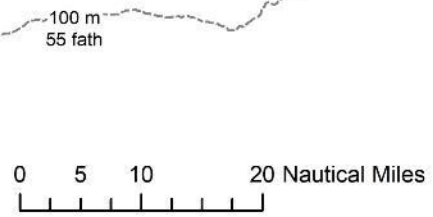
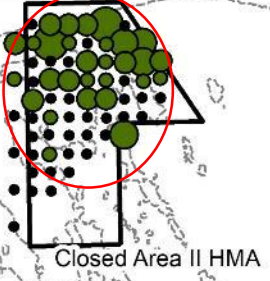
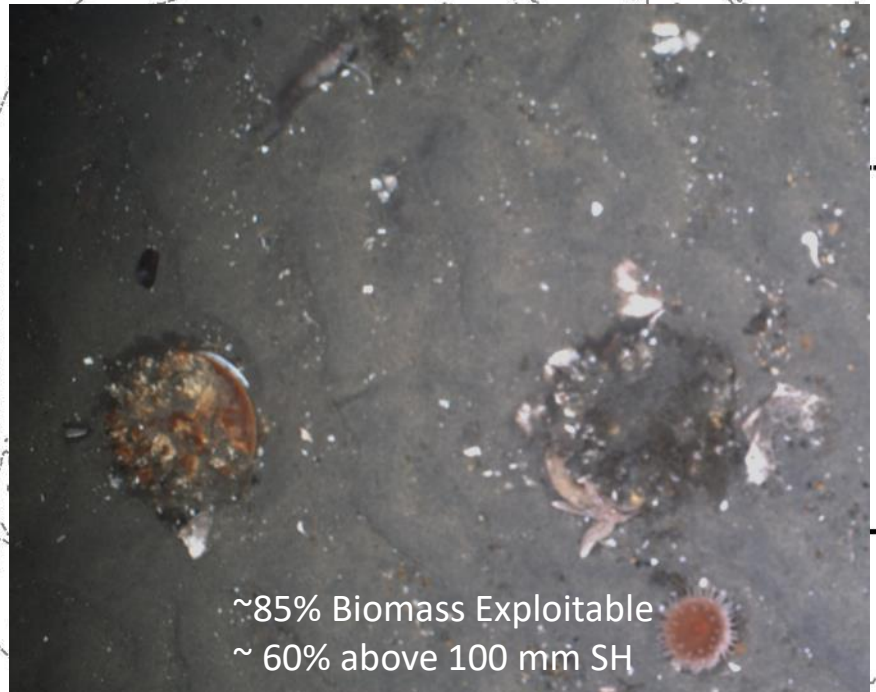
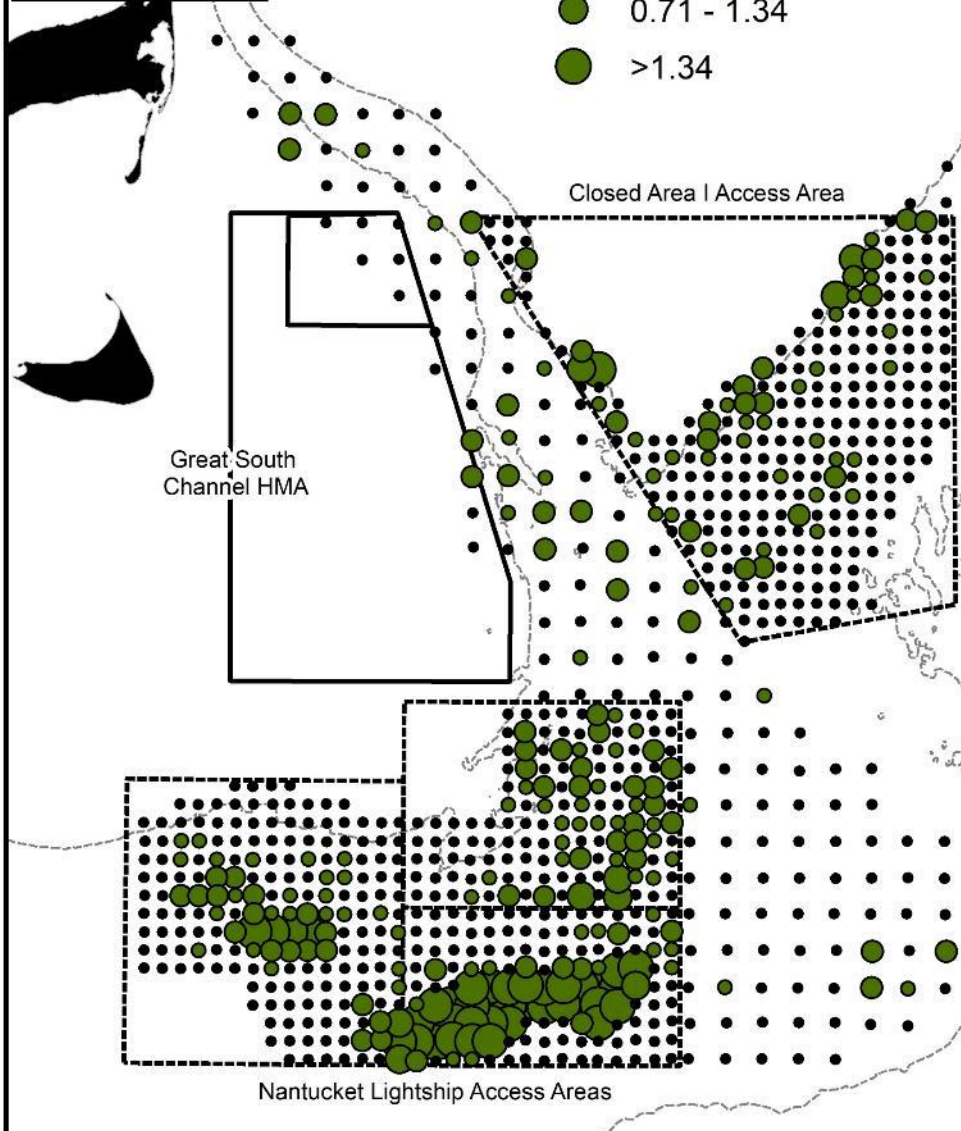
Scallops > 75 mm per m²

- <0.09
- 0.09 - 0.17
- 0.18 - 0.70
- 0.71 - 1.34
- >1.34

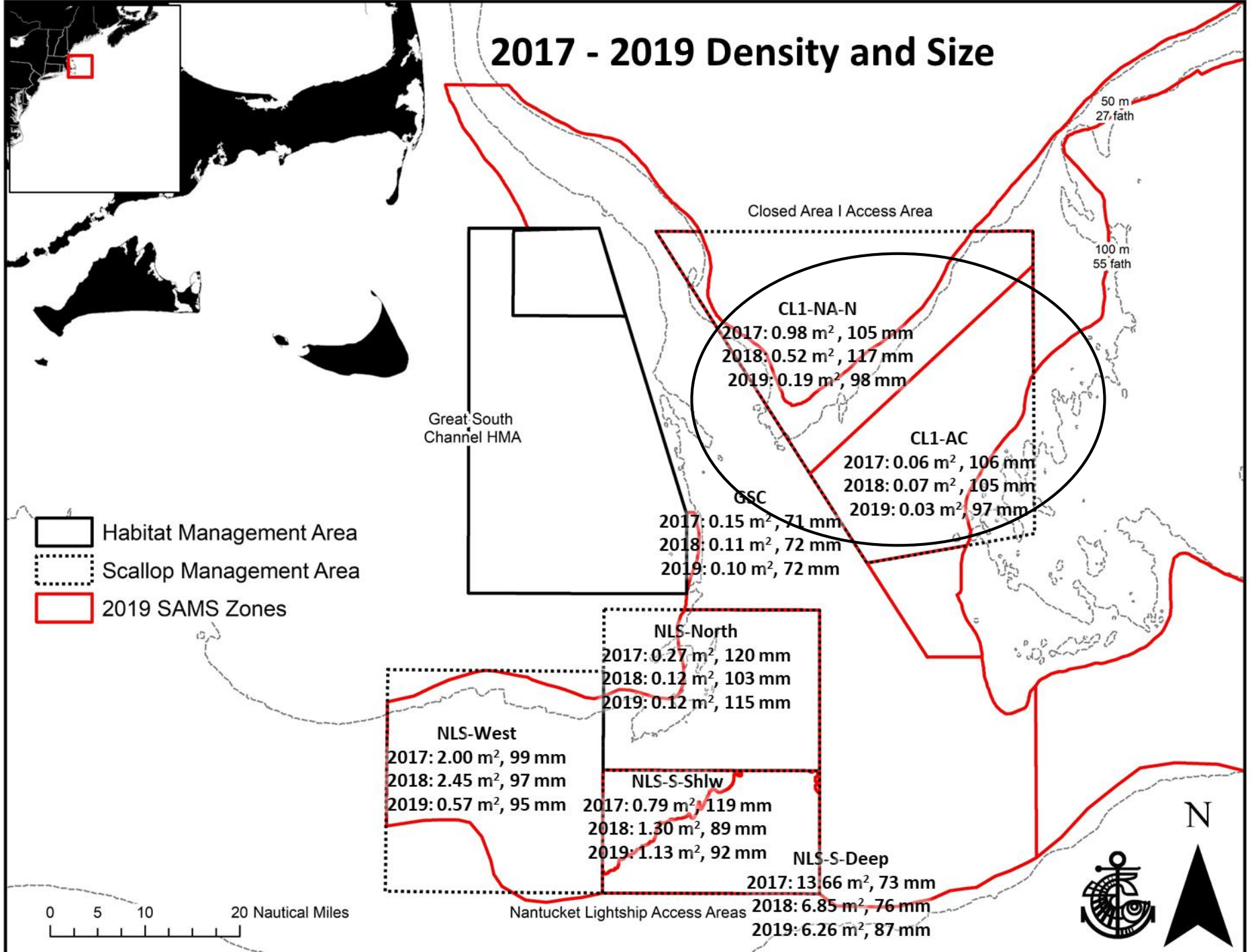


Scallops > 75 mm per m²

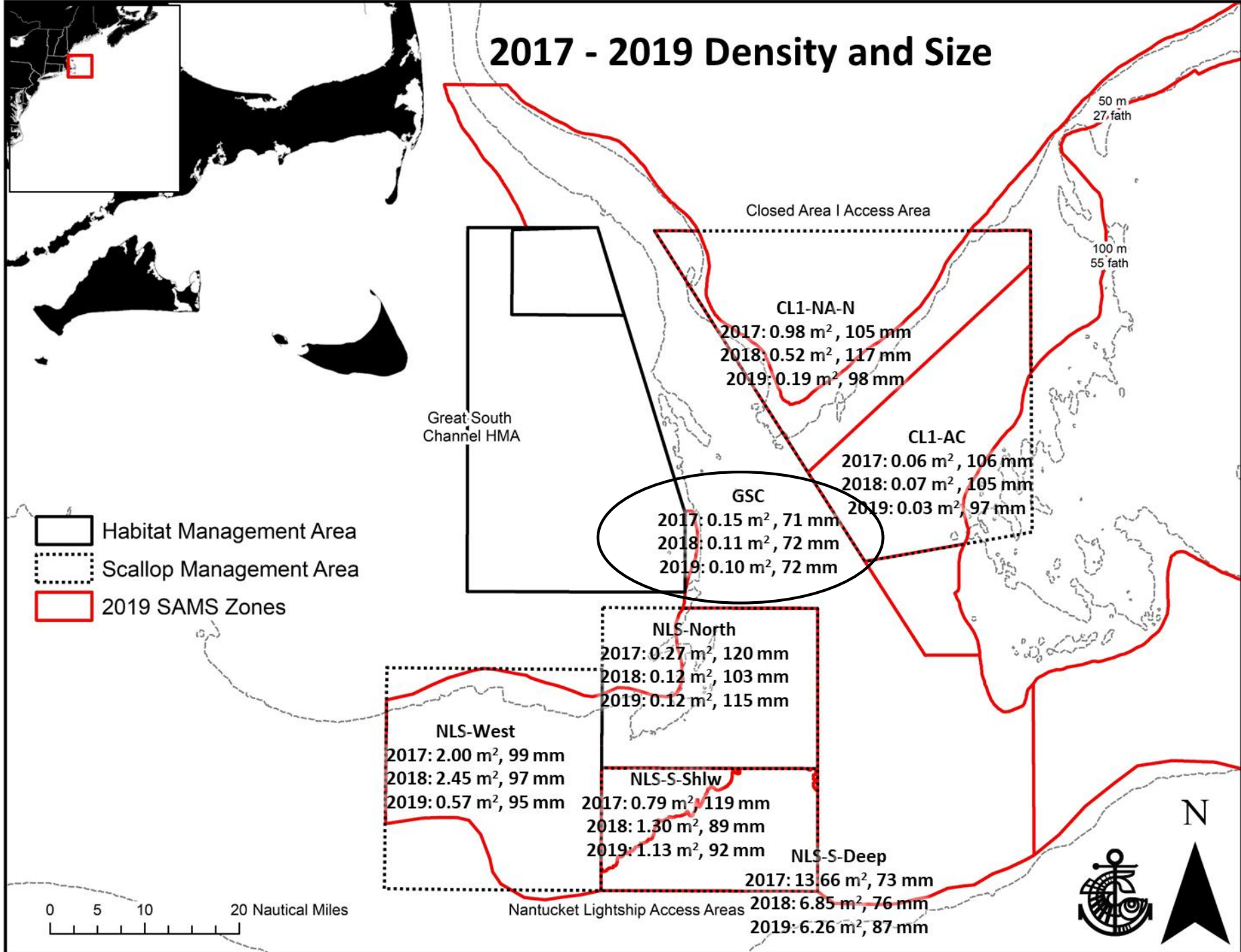
- <0.09
- 0.09 - 0.17
- 0.18 - 0.70
- 0.71 - 1.34
- >1.34



2017 - 2019 Density and Size



2017 - 2019 Density and Size



2017 - 2019 Density and Size



-  Habitat Management Area
-  Scallop Management Area
-  2019 SAMS Zones

SMAST 2018 Biomass
86,000 mt (+/- 20%)

SMAST 2019 Biomass
13,450 (+/- 45%)

2019 Projection
~40,000 mt

Great South Channel HMA

Closed Area | Access Area

CL1-NA-N

2017: 0.98 m², 105 mm
2018: 0.52 m², 117 mm
2019: 0.19 m², 98 mm

CL1-AC

2017: 0.06 m², 106 mm
2018: 0.07 m², 105 mm
2019: 0.03 m², 97 mm

GSC

2017: 0.15 m², 71 mm
2018: 0.11 m², 72 mm
2019: 0.10 m², 72 mm

NLS-North

2017: 0.27 m², 120 mm
2018: 0.12 m², 103 mm
2019: 0.12 m², 115 mm

NLS-West

2017: 2.00 m², 99 mm
2018: 2.45 m², 97 mm
2019: 0.57 m², 95 mm

NLS-S-Shlw

2017: 0.79 m², 119 mm
2018: 1.30 m², 89 mm
2019: 1.13 m², 92 mm

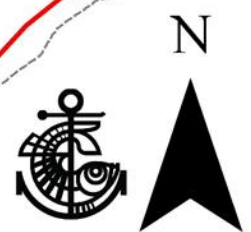
NLS-S-Deep

2017: 13.66 m², 73 mm
2018: 6.85 m², 76 mm
2019: 6.26 m², 87 mm

Nantucket Lightship Access Areas

50 m
27 fath

100 m
55 fath

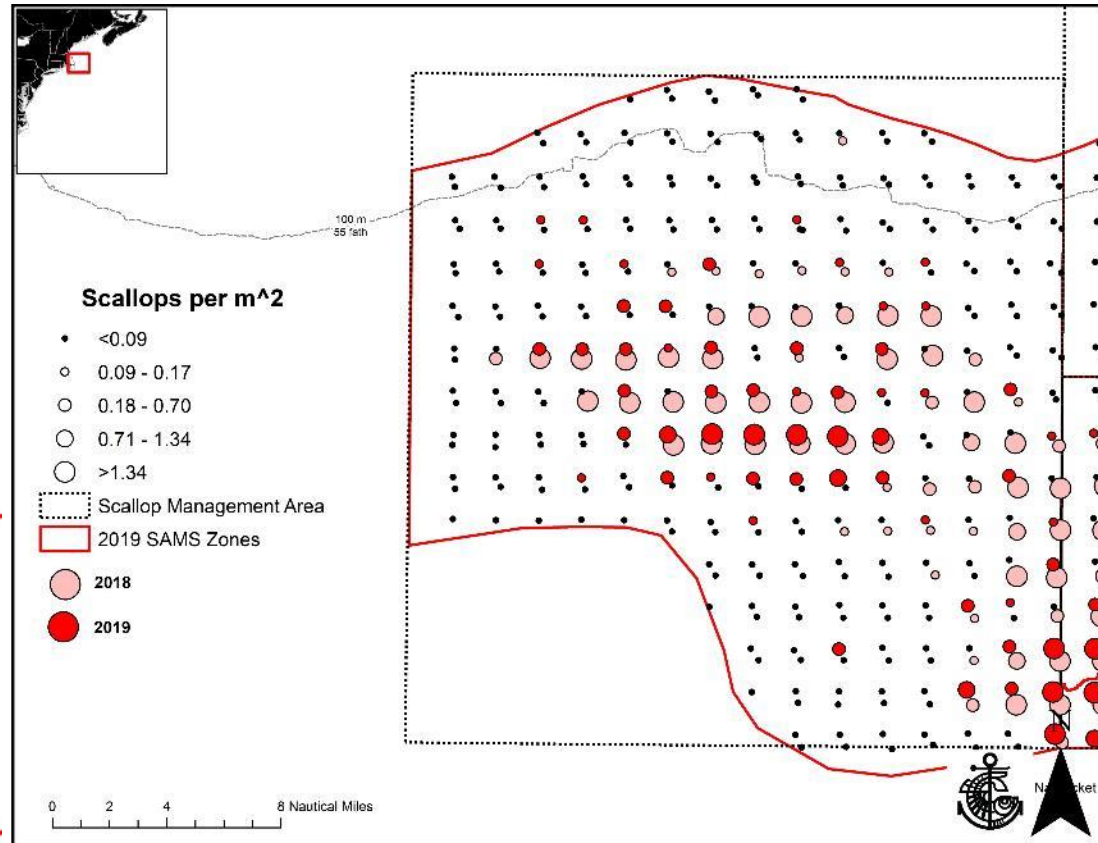
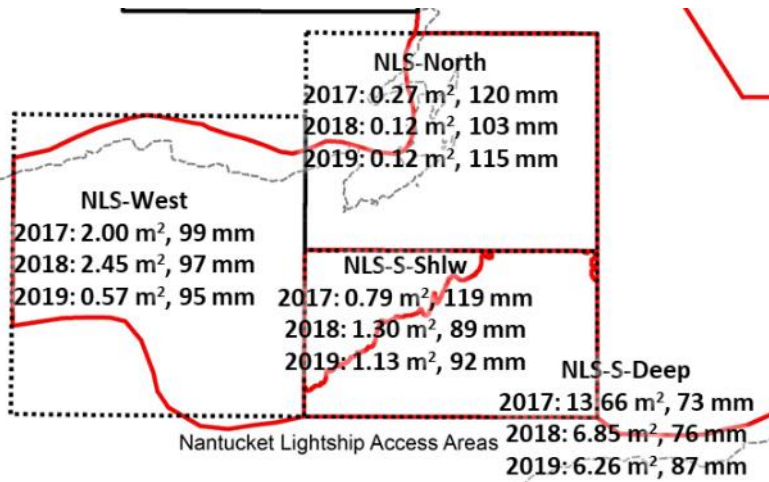


NLS-West Decline

SMAST 2018 Biomass
86,000 mt (+/- 20%)

SMAST 2019 Biomass
13,450 (+/- 45%)

2019 Projection
~40,000 mt

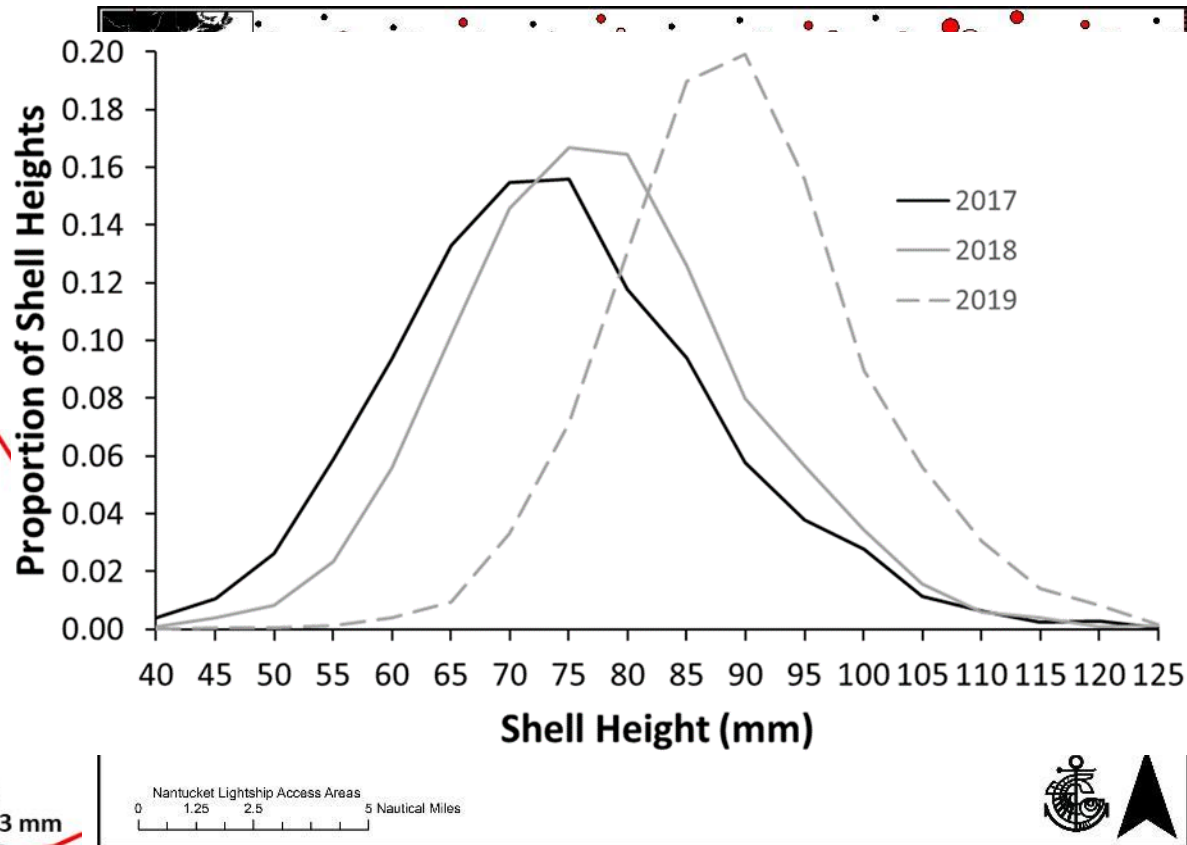
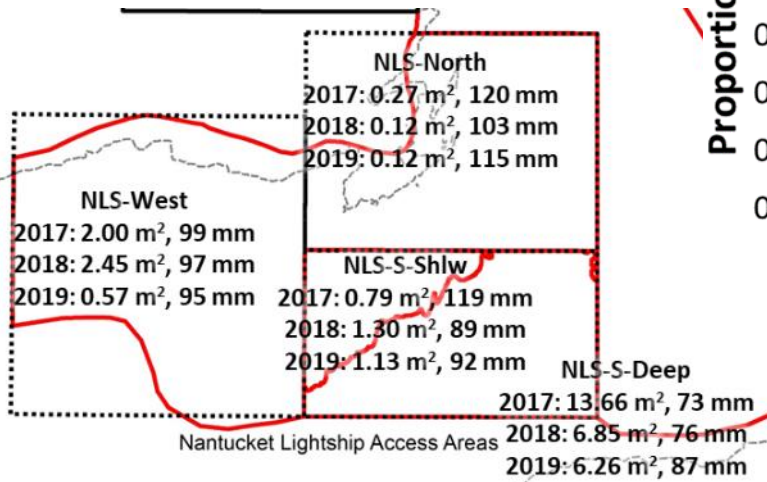


NLS-South-Deep Increase

SMAST 2018 Biomass
37,950 mt (+/- 20%)

SMAST 2019 Biomass
49,700 (+/- 18%)

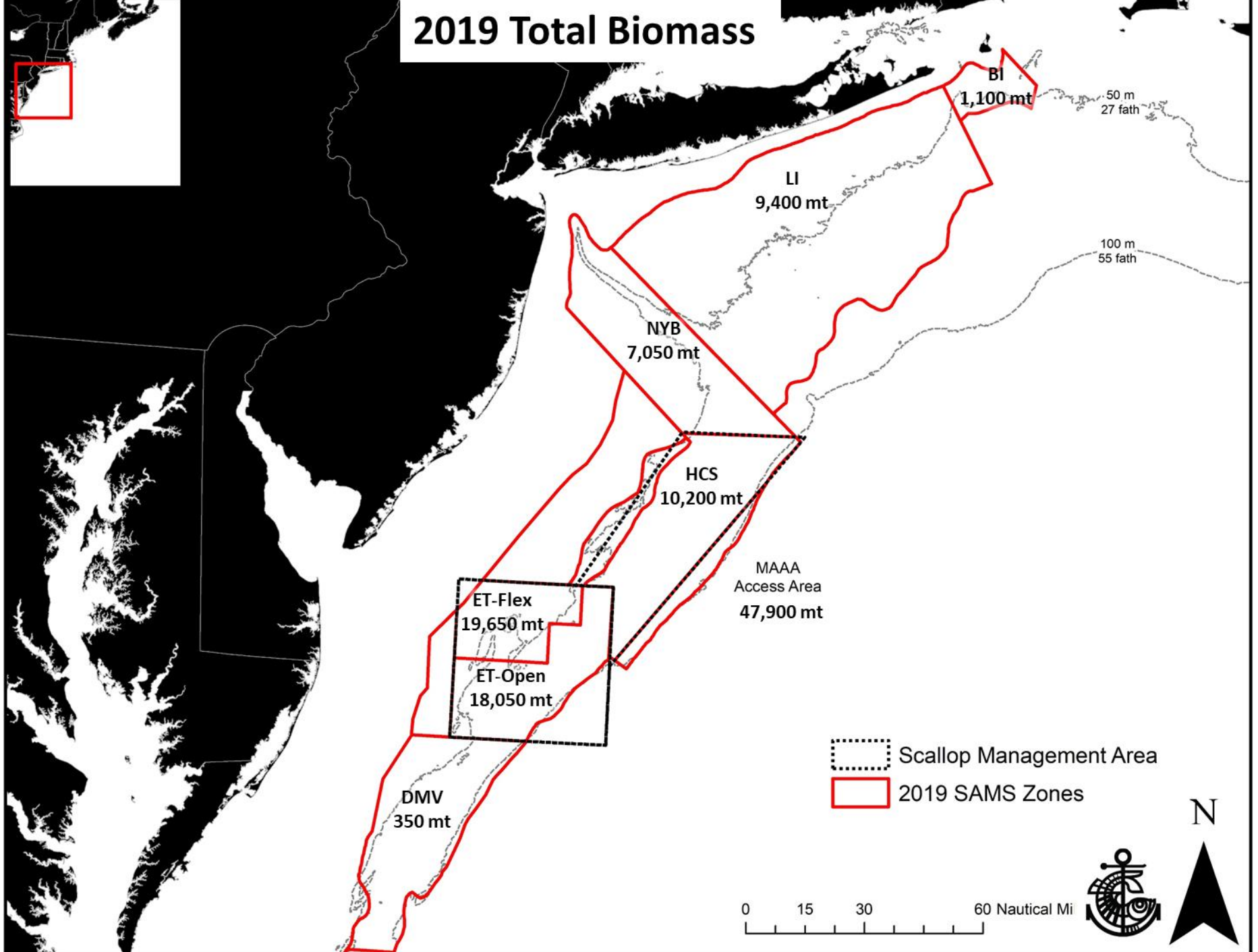
2019 Projection
~38,000 mt



Nantucket Lightship Access Areas
0 1.25 2.5 5 Nautical Miles

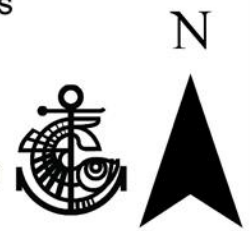


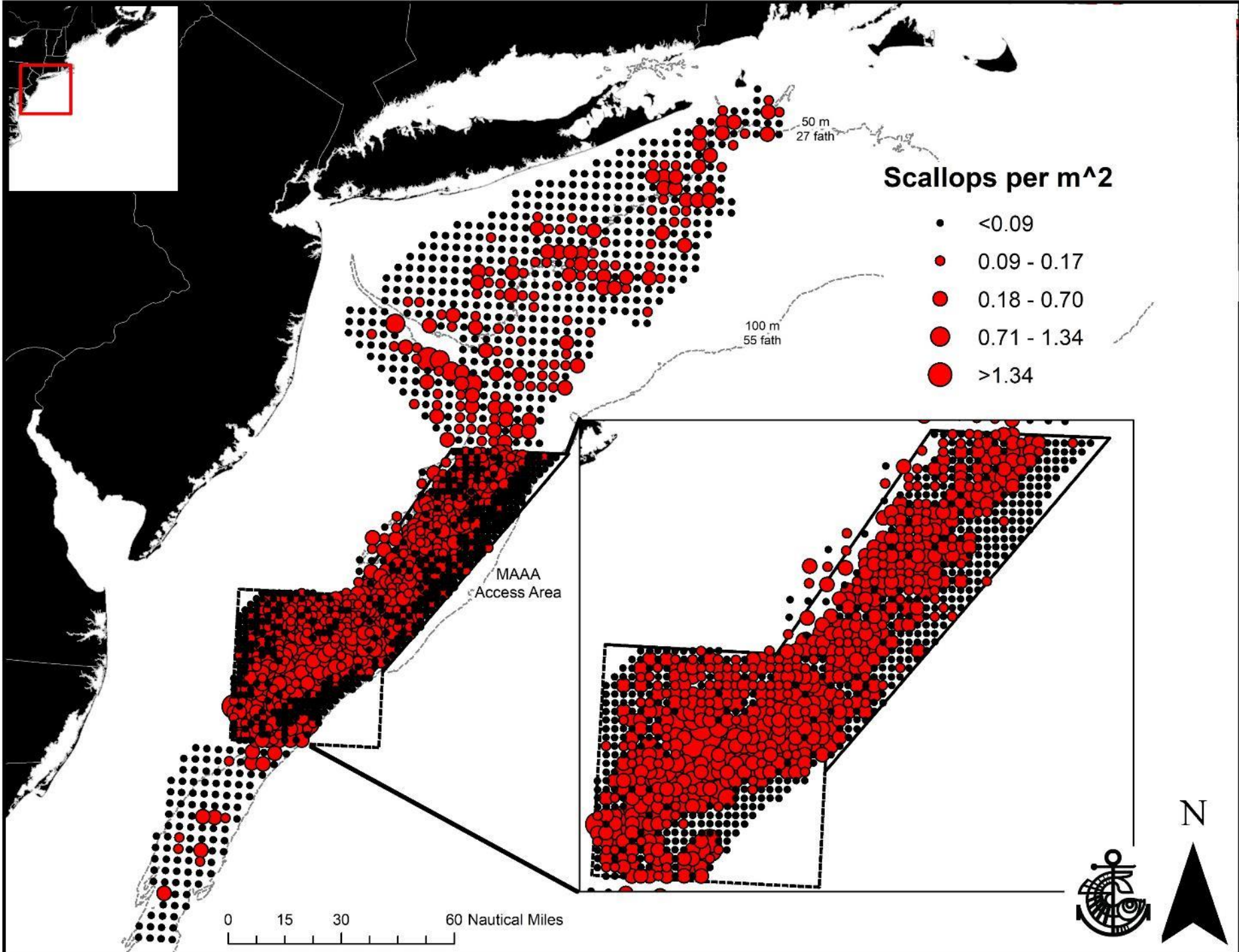
2019 Total Biomass

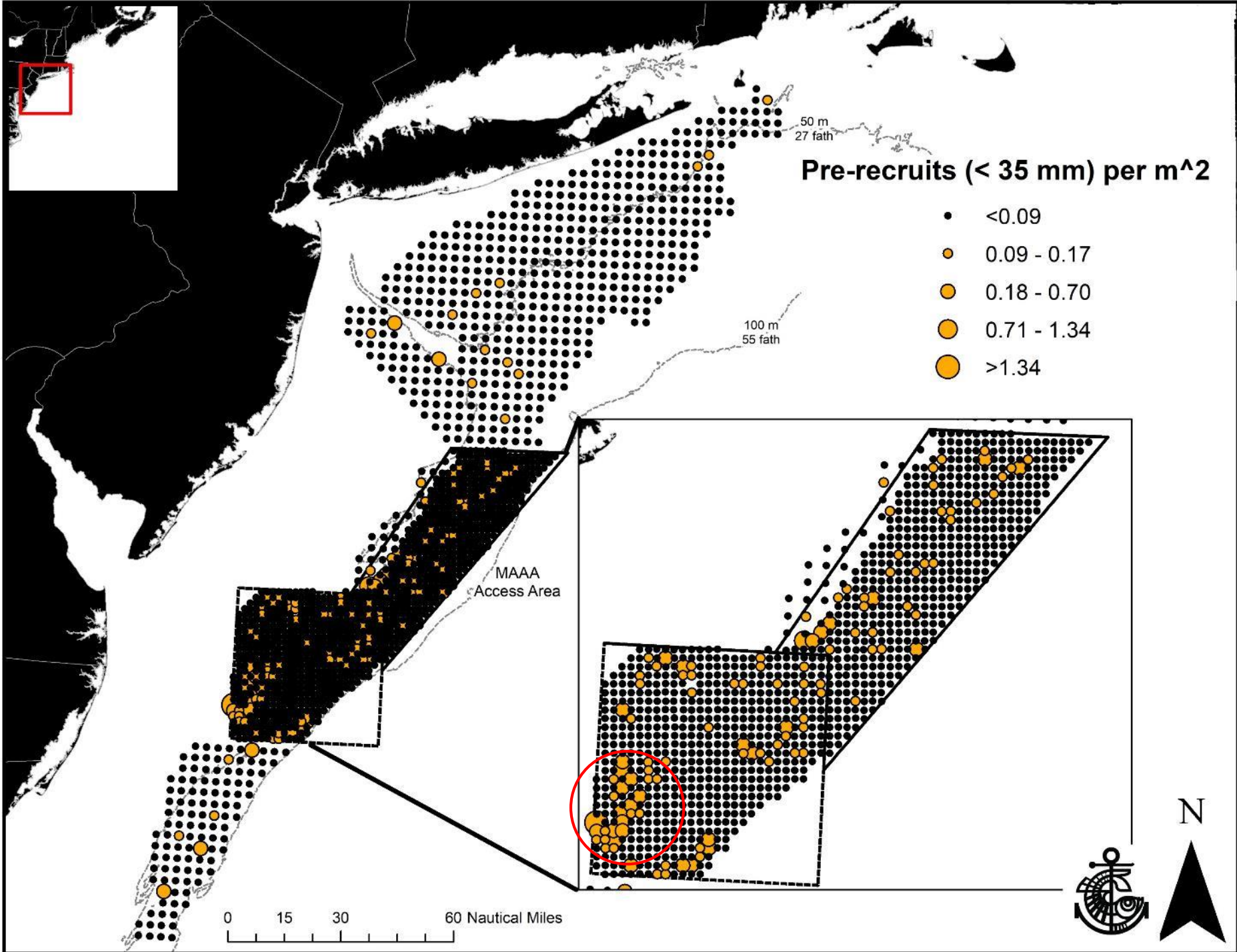


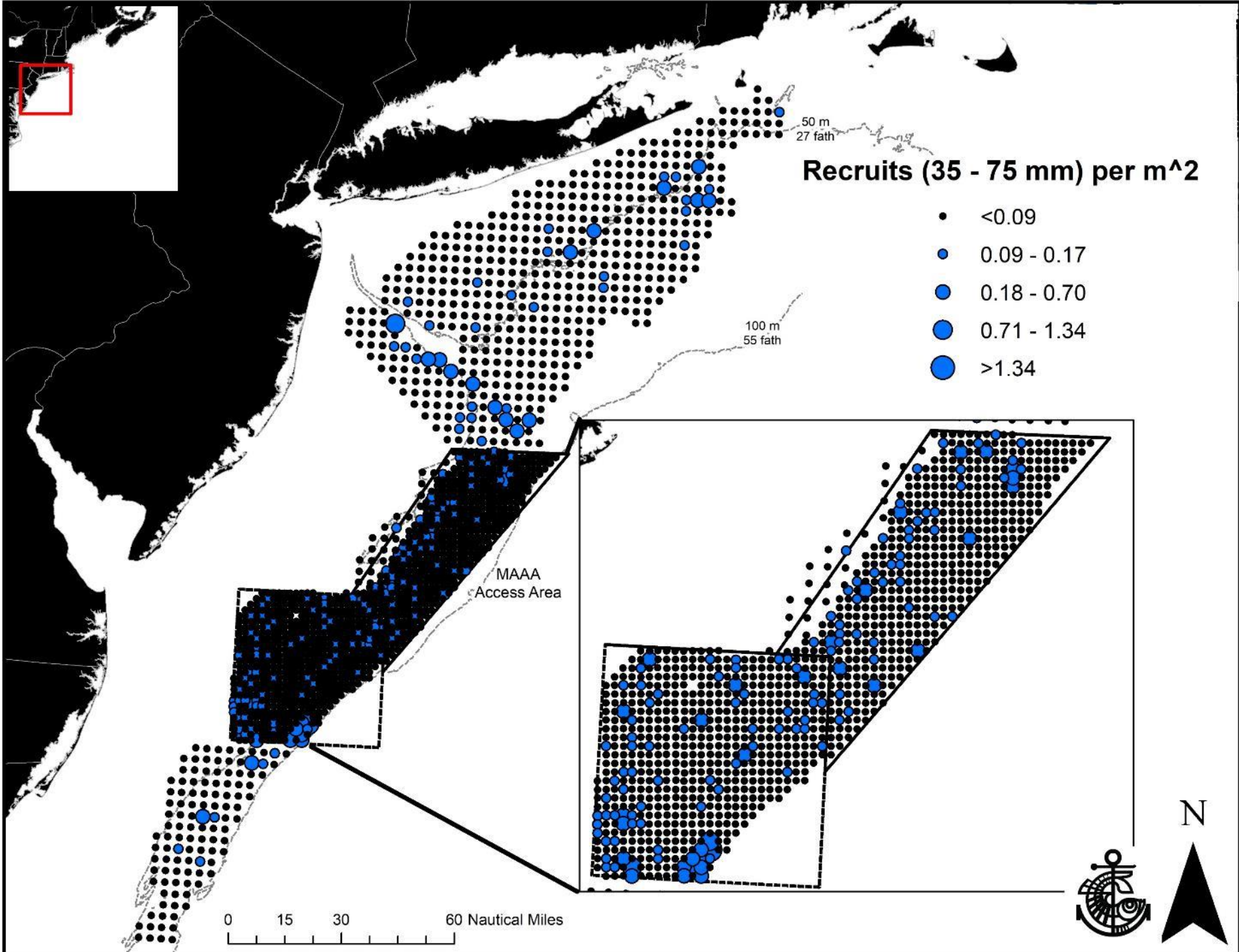
Scallop Management Area
2019 SAMS Zones

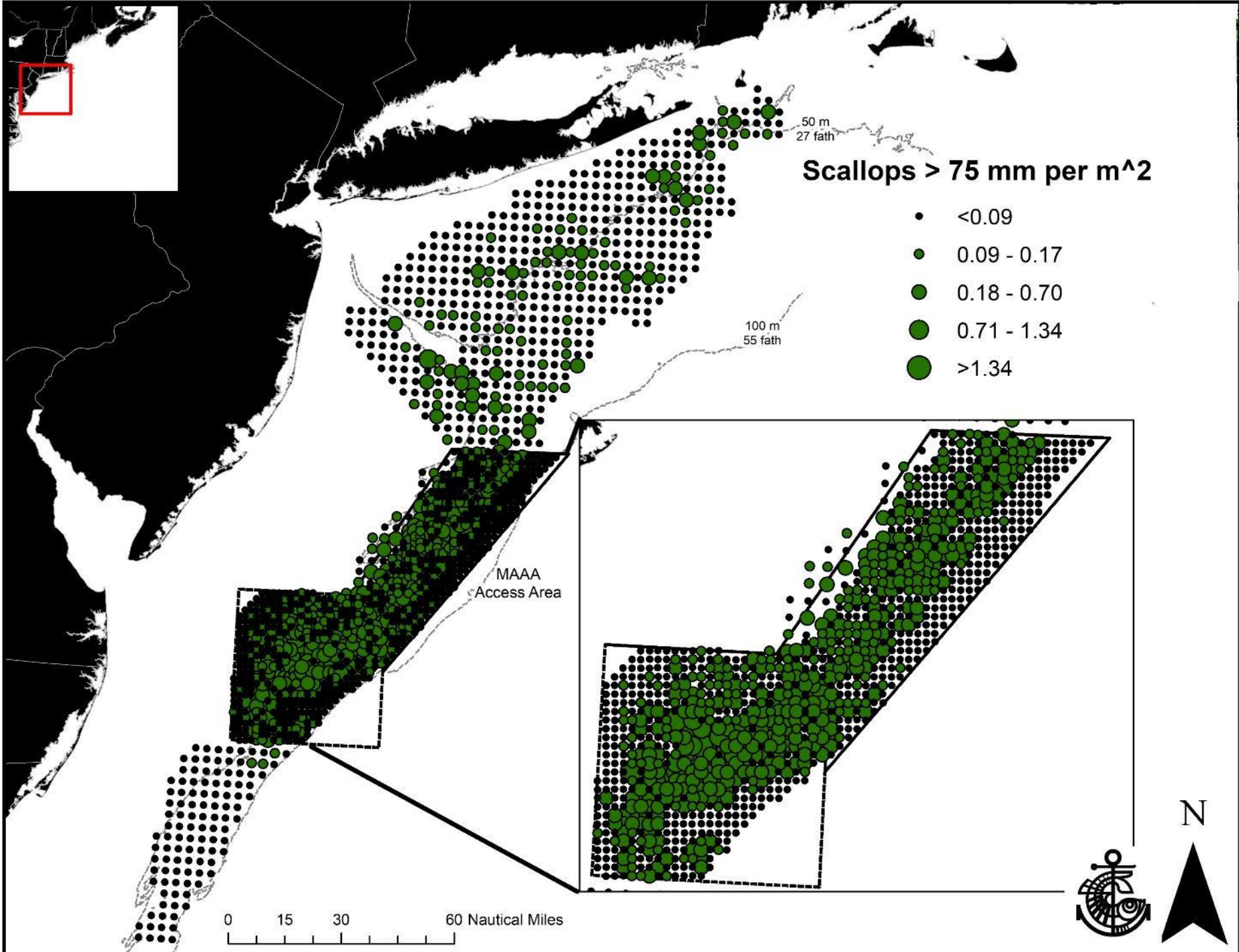
0 15 30 60 Nautical Mi



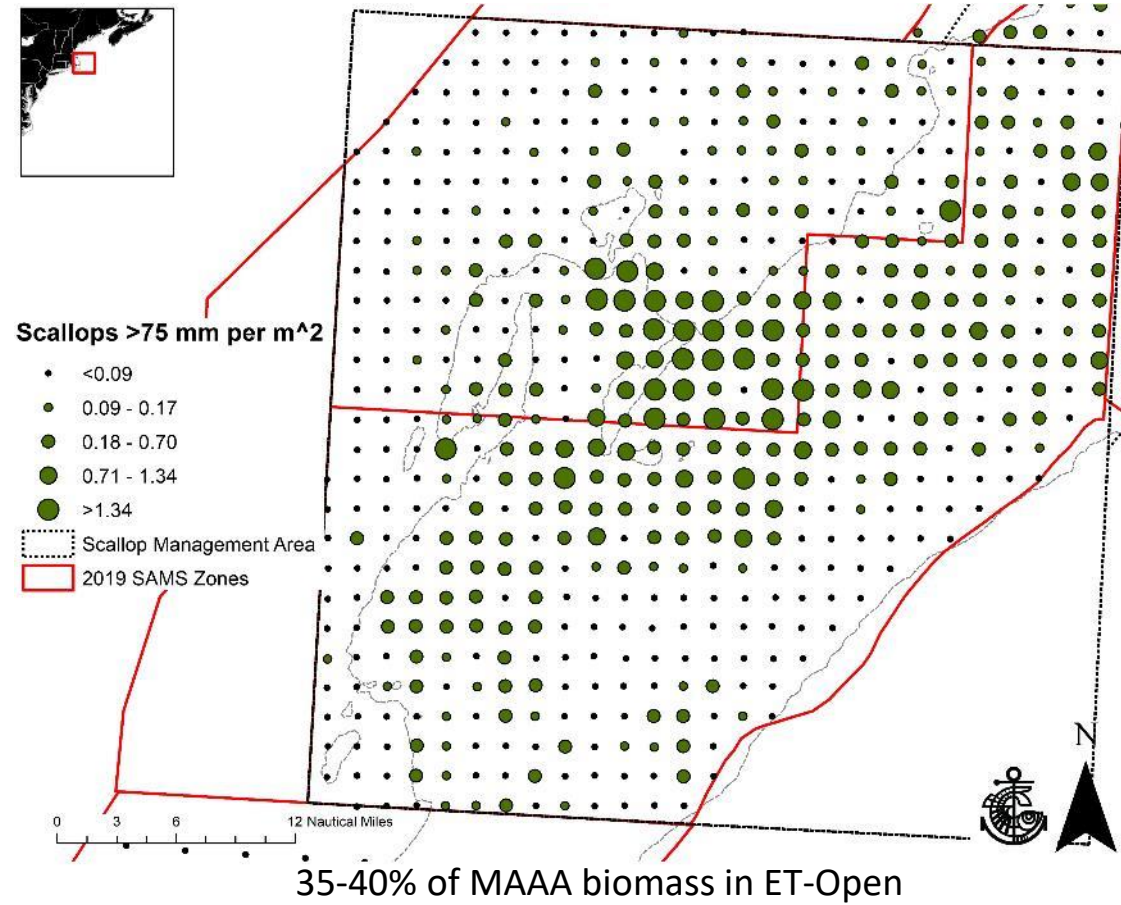






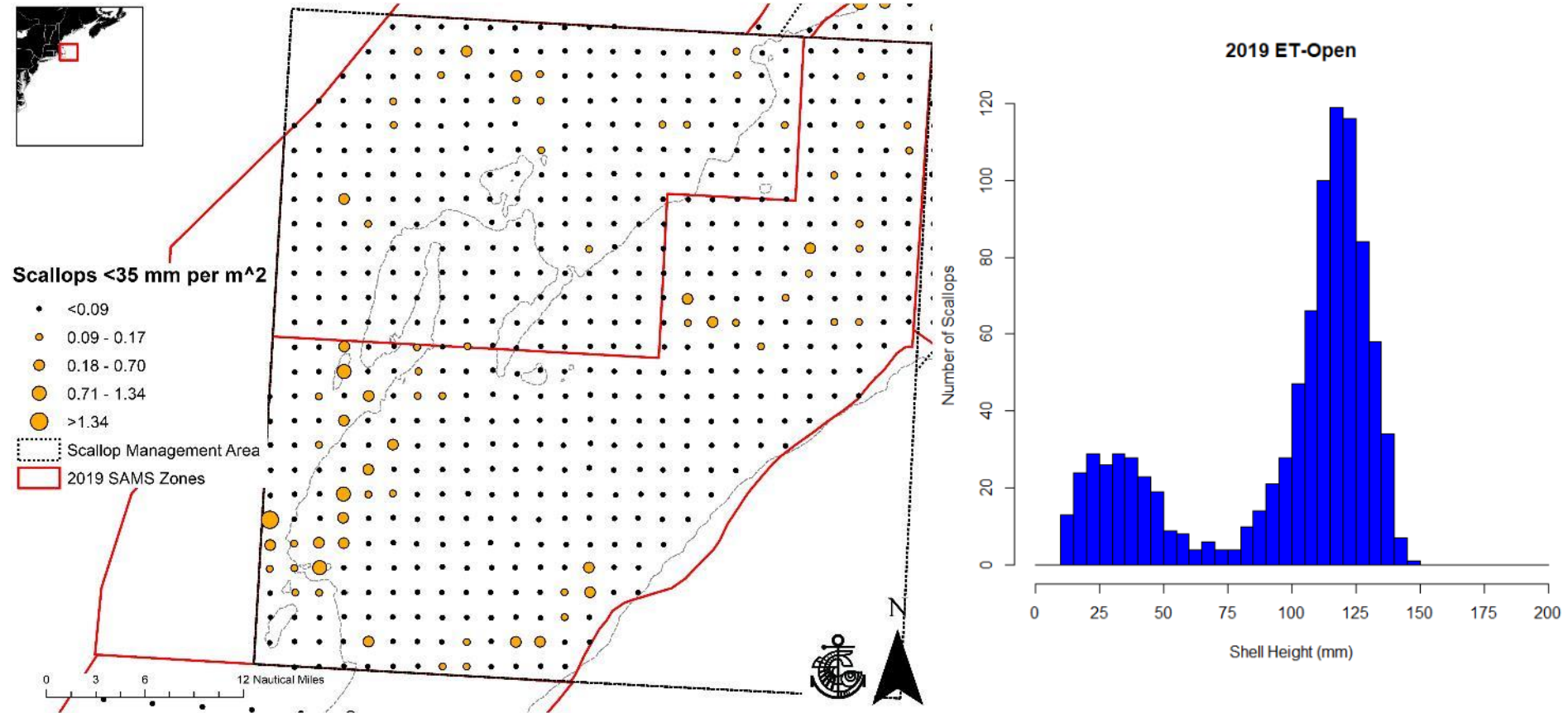


ET-Open and the MAAA



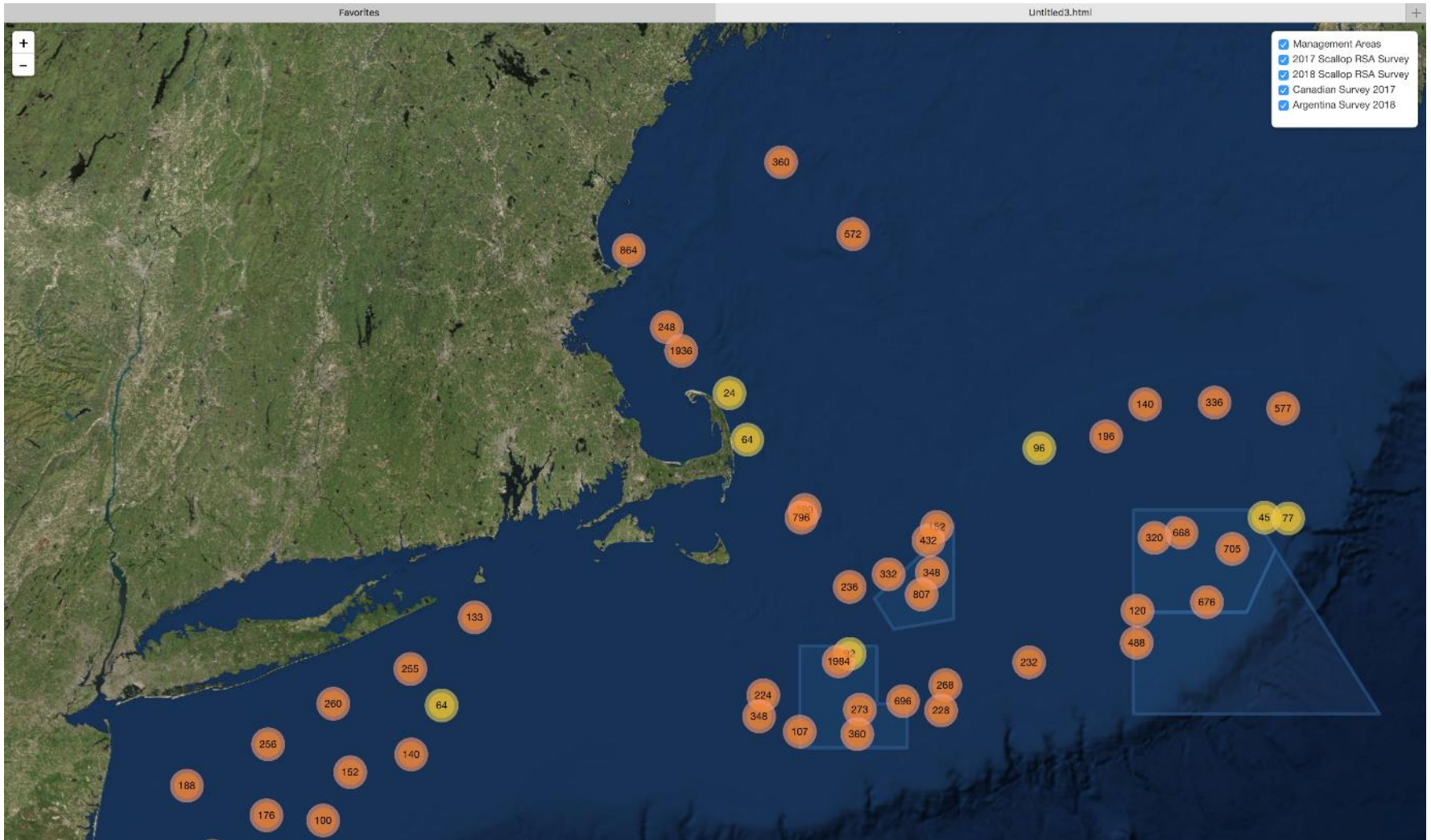
2018 VMS data presented to PDT in July

ET-Open and the MAAA



25% of scallops in ET-Open <math><75</math> mm
Most in south

Image Sharing



<http://bit.ly/scallopsurvey>

Questions/Discussion

Thank you to all involved in SMAST Drop Camera Survey:

Students, Staff, Captains, Crew, Vessel Owners, Fuel and Food
Donators